WHAT WE CLAIM IS:

1. A separator for a flat-type polymer electrolyte fuel cell comprising unit cells arrayed in flat configuration, characterized by comprising a fuel-feed-side separator and an oxygen-feed-side separator, each comprising a collector portion in which n unit conductive substrates wherein n is an integer of 2 or more, each having a plurality of through-holes through which fuel or oxygen passes, are arrayed in flat configuration via gaps, and a pair of insulating frames which have n openings in alignment with an array position of said unit conductive substrates and are integrated in such a way as to hold said collector portion therebetween, wherein:

1^{st} to $(n-1)^{th}$ unit conductive substrates of the n unit conductive substrates that form said collector portion in one of said fuel-feed-side separator and said oxygen-feed-side separator, as counted from one end of an array direction thereof, and 2^{nd} to n^{th} unit conductive substrates of the n unit conductive substrates that form said collector portion in another separator, as counted from one end of an array direction thereof are successively joined together by means of (n-1) connecting hinges.

2. The separator for a flat-type polymer electrolyte fuel cell according to claim 1, wherein:

in one of said fuel-feed-side separator and said oxygen-feed-side separator, the 1^{st} to $(n-1)^{th}$ unit conductive substrates of the n unit conductive substrates that form said collector portion, as counted from one end of the array direction, each includes at a corner a lug member that juts toward an adjoining unit conductive substrate,

the 2^{nd} to n^{th} unit conductive substrates as counted from said one end of the array direction each includes at a corner a cutout that is in alignment with said lug member of a unit conductive substrate adjacent to an upstream side of the array direction and configured in such a way as to from a gap with said lug member,

the (n-1) unit conductive substrates having said lug members each includes at said lug member a connecting hinge that juts in a direction substantially orthogonal to the array direction of the unit conductive substrates, and

the 2^{nd} to n^{th} unit conductive substrates of the n unit conductive substrates that form said collector portion in another separator, as counted from one end of the array direction thereof, are joined to said lug members by means of the (n-1) connecting hinges.

3. A separator for a flat-type polymer electrolyte fuel cell according to claim 1, wherein:

in the n unit conductive substrates that form the collector portion in the fuel-feed-side separator and the n unit conductive substrates that form the collector portion in the oxygen-feed-side separator, electrode terminals are provided at the unit conductive substrates which are positioned at ends of the respective array directions and to which said connecting hinges are not connected.

4. A separator for a flat-type polymer electrolyte fuel cell in which unit cells are arrayed in flat configuration, characterized by comprising:

a collector portion in which two or more unit conductive substrates, each having a plurality of through-holes, are arrayed in flat configuration via gaps, and an electrical insulating outer frame and a membrane-electrode

assembly (MEA) side frame that are integrated in such a way as to hold said collector portion therebetween, wherein:

said outer frame comprises a plurality of minuscule openings in regions in alignment with an array position of said unit conductive substrates, and said membrane-electrode assembly (MEA) side frame comprises an opening in alignment with the array position of said unit conductive substrates.

5. A separator for a flat-type polymer electrolyte fuel cell according to claim 4, wherein each minuscule opening in said outer frame is larger in size than said through-holes that each unit conductive substrate has.

6. A separator for a flat-type polymer electrolyte fuel cell according to claim 4, wherein said outer frame and said membrane-electrode assembly (MEA) side frame are each formed of a resin, a resin/inorganic material composite, a metal having an insulating coating thereon, or ceramics.

7. A separator for a flat-type polymer electrolyte fuel cell in which unit cells are arrayed in flat configuration, characterized by comprising:

a collector portion in which two or more unit conductive substrates, each having a plurality of through-holes, are arrayed in flat configuration via gaps, and an electrical insulating outer frame and a membrane-electrode assembly (MEA) side frame that are integrated in such a way as to hold said collector portion therebetween, wherein:

said outer frame comprises an opening in alignment with an array position of said unit conductive substrates

and a reinforcement provided across said opening, and said membrane-electrode assembly (MEA) side frame comprises an opening in alignment with the array position of said unit conductive substrates.

8. A separator for a flat-type polymer electrolyte fuel cell according to claim 7, wherein said reinforcement on said outer frame comprises a plurality of belt-form members.

9. A separator for a flat-type polymer electrolyte fuel cell according to claim 7, wherein said outer frame and said membrane-electrode assembly (MEA) side frame are each formed of a resin, a resin/inorganic material composite, a metal having an insulating coating thereon, or ceramics.

10. A separator for a flat-type polymer electrolyte fuel cell in which unit cells are arrayed in flat configuration, characterized by comprising:

a collector portion in which two or more unit conductive substrates, each having a plurality of through-holes, are arrayed in flat configuration via gaps, and an electrical insulating outer frame and a membrane-electrode assembly (MEA) side frame that are integrated in such a way as to hold said collector portion therebetween, wherein:

said outer frame and said membrane-electrode assembly (MEA) side frame each includes an opening in alignment with an array position of said unit conductive substrates, wherein each unit conductive substrate is configured in such a way as to jut toward said opening in said membrane-electrode assembly (MEA) side frame.

11. A separator for a flat-type polymer electrolyte fuel cell according to claim 10, wherein each

unit conductive substrate is domed in an extent smaller than an area of the opening in said membrane-electrode assembly (MEA) side frame.

12. A separator for a flat-type polymer electrolyte fuel cell according to claim 11, wherein said domed portion is in catenary shape.

13. A separator for a flat-type polymer electrolyte fuel cell according to claim 10, wherein each unit conductive substrate is projected in an offset shape with an area smaller than an area of the opening in said membrane-electrode assembly (MEA) side frame.

14. A separator for a flat-type polymer electrolyte fuel cell according to claim 10, wherein said outer frame and said membrane-electrode assembly (MEA) side frame are each formed of a resin, a resin/inorganic material composite, a metal having an insulating coating thereon, or ceramics.